

Product Information Sheet

Electric Vehicle Electronics Workstation

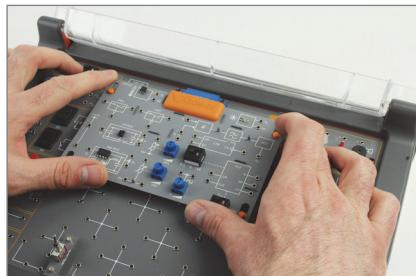


The Electric Vehicle Electronics Workstation allows the practical study of the complete range of circuits used in a vehicle, including:

- Basic Electronic Circuits
- Specific Semiconductors
- Analog and Digital Sensing Systems
- Pulse Width Modulation
- Rectifiers and Inverters

The Electric Vehicle Electronics Workstation comprises an Electric Vehicle Electronics Trainer (730-10), a component set, and a range of 5 plug-in experiment cards.

The workstation is an ideal resource for an advanced automotive/EV electronics program and includes access to digital curriculum materials including theory and practical learning tasks.



Workstation with experiment card fitted

Electric Vehicle Electronics Trainer (730-10) Features:

- All on-board power supplies are short circuit/overload protected
- Experiment card mounting area
- Circuit patching area for use with component set; reflects the physical layout of circuit diagrams
- Experiment cards and patching area may be used together
- Easy-to-use switched fault facility for fault-finding activities on the trainer and experiment cards
- Servo motor for simple motor control circuits
- 5A auto fuse and holder
- Two rocker switches
- Two pushbutton switches
- Slow and fast range clock
- Linear voltage display
- Amplifier and buzzer
- Three position rotary switch for exploring simple auto light circuits
- 12V 25A SPCO auto relay
- DPCO relay
- Two LED outputs
- Transistor switch and relay
- Linear slide variable resistor
- Variable, +5V, and +12V power supplies
- Connection panel provides 2mm and 4mm sockets, test pins for oscilloscope probes and connector for powering prototyping boards

Included in Component Set:

- A total of 28 components mounted on robust carriers and 2 ICs
- 2x Switches (toggle)
- 4 x 12V Lamp
- Resistors (47R, 100R, 1K, 4.7K, 10K, 47K, 100K, 220K)
- Capacitors (1 µF, 10 µF, 100 µF)
- Inductor (100 mH)
- Sensors (theristor, phototransistor, microphone)
- Diodes (4x 1N4001)
- Potentiometer (10K)

Experiment Cards:

The following cards are included:

- Electronic Systems
- Electromagnetism
- Input Transducers
- Analog Integrated Circuits
- Pulse Width Modulation Signals

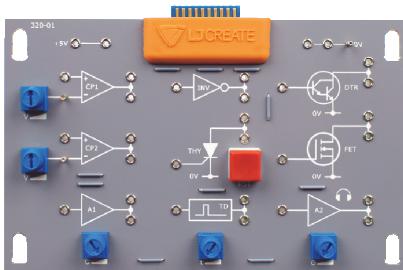
(See following page for more experiment card details)

Product Information Sheet (Continued)

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EXPERIMENT CARDS OVERVIEW:

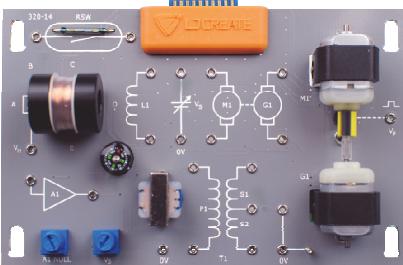


Electronic Systems Card (320-01)

Investigate and interconnect the following sub-systems:

- Two comparators with adjustable reference voltages
- Voltage amplifier with adjustable gain
- Logic inverter
- Darlington transistor
- Adjustable time delay
- Audio amplifier

Each of these is treated as a simple functional block. No additional components need to be connected for correct operation.



Electromagnetism Card (320-14)

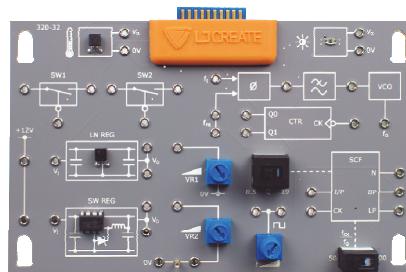
Investigate the following devices:

- Reed switch
- Hall effect sensor
- Electromagnet
- Solenoid
- Transformers
- DC motor and generator
- Fault-finding electromagnetic circuits

Input Transducers Card (320-15)

Investigate the following aspects of auto transducers:

- Photo sensors - auto headlamp circuit
- Temperature sensor - NTC thermistor
- PTC temperature sensor operation
- Closed loop temperature control circuit
- Closed loop circuit - hysteresis
- Operation of a humidity and temperature sensor
- Operation of a current sensor
- Operation of a pressure sensor
- Digital hall effect sensor
- Analog hall effect sensor
- Operation of an inductive sensor
- Low pass filter application
- Fault-finding sensor circuits



Analog Integrated Circuits Card (320-32)

Investigate the following devices:

- Thermal sensor IC
- Optical sensor IC
- Linear voltage regulator
- Switch mode voltage regulator
- Switched capacitor filter
- Phase locked loop (PLL)
- Analog switches

Pulse Width Modulation Signals Card (320-50)

Investigate the following devices:

- PWM signal driving an LED
- PWM signal - variable frequency and duty cycle
- PWM motor speed control circuit
- Investigation of a sensorless motor speed control signal
- Investigation of a 3-phase waveform
- 3-Phase inverter driver circuit
- PWM to 3-phase drive signal
- 3-Phase bridge rectifier circuit
- Rectifier with DC smoothing capacitor
- Fault-finding signal conditioning circuits W1
- Fault-finding signal conditioning circuits W2
- Fault-finding signal conditioning circuits W3

Items Included:

- Study trainer
- Experiment cards (x5)
- Curriculum in digital format
- Component set
- Connection lead set
- Storage case

Other Items Required:

- Some tasks may require a dual trace oscilloscope, a signal generator, and one or more multimeters

General Information:

- Power Requirements: 110–240V, 50–60Hz
- Total Shipping Volume: 0.04 m³
- Total Shipping Weight: 4 kg

Order Code: 730-00

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For more information visit www.ljcreate.com